

**GENERAL
SAFETY ORDERS
COVERING METAL AND
NONMETALLIC MINES, MILLS,
SMELTERS, TUNNELS, QUARRIES,
GRAVEL, PITS, ETC. IN THE
STATE OF UTAH**



**ISSUED BY THE
INDUSTRIAL COMMISSION
OF UTAH**

EFFECTIVE JULY 1, 1963

Blankets for 1st aid
Fire equipment for safety

**GENERAL SAFETY ORDERS
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NONMETALLIC MINES, MILLS,
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GRAVEL PITS, ETC. IN THE
STATE OF UTAH**

Effective July 1, 1963

**OTTO A. WIESLEY, Chairman
Casper A. Nelson, Commissioner
Carlyle F. Gronning, Commissioner**

**THE INDUSTRIAL COMMISSION OF UTAH
STATE CAPITOL BUILDING
SALT LAKE CITY, UTAH**

Section 27-A. SLUSHERS—SCRAPERS— DRAGLINES

(a) Hoists shall be anchored securely and equipped with safety screens or guards to protect the operator from the hazards of flying material and broken cables.

(b) Snatch blocks shall be anchored securely. All blocks and cables shall be inspected regularly and properly maintained.

(c) No one shall be permitted to work or travel inside the bight of moving cables.

(d) An operator shall not start operations until he has ascertained that everyone is a safe distance from the equipment.

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Order No. 22816 dated April 30, 1963 was issued by the Industrial Commission of Utah, adopting the following GENERAL SAFETY ORDERS COVERING METAL AND NONMETALLIC MINES, MILLS, SMELTERS, TUNNELS, QUARRIES, GRAVEL PITS, ETC. IN THE STATE OF UTAH, to become effective July 1, 1963.

Grateful acknowledgement is hereby made of the recommendations submitted by management, labor, and federal and state mine safety representatives in response to Commission request, relative to revision of the existing General Safety Orders for Metal Mines, Mills and Smelters, etc., which have been in effect since July 1, 1945.

Grateful acknowledgement is also made of the time and effort contributed over a period of ten months by the following persons who accepted appointment as committeemen or alternate committeemen to study the safety orders and suggestions for improvement, and submit to the Commission for consideration a revision, which has been adopted essentially as proposed.

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A. O. Jensen

Columbia Iron Mining Company

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Industrial Commission of Utah

The very able services of Committee Chairman Victor G. Pett, Mine Inspector, and Theresa Jckowski, Secretary, Safety Division, are also acknowledged.

IMPORTANT

In all cases of fatal or serious accident, or in the event of explosion, flood or major fire, notify immediately by telephone:

A STATE MINE INSPECTOR

OR

THE INDUSTRIAL COMMISSION OF UTAH

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GENERAL SAFETY ORDERS COVERING METAL AND NONMETALLIC MINES, MILLS, SMELTERS, TUNNELS, QUARRIES, GRAVEL PITS, ETC.

PREFACE: APPLICABLE STATUTES

35-1-16 U.C.A. 1953. POWERS AND DUTIES OF THE INDUSTRIAL COMMISSION OF UTAH

It shall be the duty of the Commission, and it shall have full power, jurisdiction and authority:

1. To supervise every employment and place of employment and to administer and enforce all laws for the protection of the life, health, safety and welfare of employees.

2. To ascertain and fix such reasonable standards, and prescribe, modify and enforce such reasonable orders, for the adoption of safety devices, safeguards and other means or methods of protection, to be as nearly uniform as possible, as may be necessary to carry out all laws and lawful orders relative to the protection of the life, health, safety and welfare of employees in employment and places of employment.

3. To ascertain, fix and order such reasonable standards for the construction, repair and

maintenance of places of employment as shall render them safe.

35-1-19 U.C.A. 1953, as amended 1961. INVESTIGATIONS OF PLACES OF EMPLOYMENT VIOLATIONS OF RULES OR ORDERS—TEMPORARY INJUNCTION

Upon complaint by any person that any employment or place of employment, regardless of the number of persons employed, is not safe or is injurious to the welfare of any employee, the Commission shall proceed, with or without notice, to make such investigation as may be necessary to determine the matter complained of. After such investigation the Commission shall enter such order relative thereto as may be necessary to render such employment or place of employment safe and not injurious to the welfare of the employees therein. Whenever the Commission shall believe that any employment or place of employment is not safe or is injurious to the welfare of any employee it may, of its own motion, summarily investigate the same, with or without notice, and issue such order as it may deem necessary to render such employment or place of employment safe.

Notwithstanding any other penalty provided in this title, if any employer, after receiving notice, fails or refuses to obey the rules, regula-

I N D E X

GENERAL SAFETY ORDERS COVERING METAL AND NONMETALLIC MINES, MILLS, SMELTERS, TUNNELS, QUARRIES, GRAVEL PITS, ETC., IN THE STATE OF UTAH

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Section 118. INTRA AND INTER PLANT RAILROAD EQUIPMENT—OPERATION, MAINTENANCE AND INSPECTION

(a) Trackage, signal systems, traffic control systems, power lines, rolling stock, and appurtenances thereto, shall be regularly inspected and maintained in good condition.

(b) The latest Interstate Commerce Commission rules and regulations pertaining to railroad safety shall be used as a guide, where applicable, for operating, maintaining and inspecting intra and inter plant railroad equipment, such as the "Laws, Rules and Instructions for Inspection and Testing of Locomotives Other Than Steam." Applicable Federal Safety Appliance Acts and the Power Brake Act shall also be guide texts.

tions, or order of the Commission relative to the protection of the life, health, safety and/or welfare of any employee, the district court of Utah is empowered, upon petition of the Commission to issue, ex parte and without bond, a temporary injunction restraining the further operation of the employer's business.

GENERAL REGULATIONS FOR ALL OPERATIONS

Section 1. OPERATIONS TO WHICH ORDERS ARE APPLICABLE

Insofar as they may be applicable, these orders shall apply to all prospects, mines, tunnels, pits, banks, quarries and open cut workings, mills, smelters and refineries in the State of Utah; provided, further, that the rules shall not apply to the operation of hydrocarbon mines.

Section 2. EXCEPTIONS TO ORDERS MAY BE MADE

In cases where, in the opinion of the Industrial Commission, the enforcement of any order would not materially increase the safety of employees, and would cause undue hardship on the operator, exceptions may be made at the discretion of said Commission, but such exceptions must be in writing to be effective, and they can be

revoked after reasonable notice is given in writing.

Section 3. PLACES OF EMPLOYMENT TO BE SAFE

No employer shall construct, occupy or maintain any place of employment that is unsafe, or require or knowingly permit any employee to be in any employment or place of employment which is not safe, or fail to provide and use safety devices and safeguards, or fail to obey and follow orders of the Commission, or to adopt and use methods and processes reasonably adequate to render such employment and place of employment safe. No employer shall fail or neglect to do every thing reasonably necessary to protect the life, health, safety and welfare of his employees.

Section 4. MISCONDUCT OF EMPLOYEES

No employee shall remove, displace, damage, destroy or carry away any safety device or safeguard provided for use in any employment or place of employment, or interfere in any way with the use thereof by any other person, or interfere with the use of any method or process adopted for the protection of employees. No employee shall refuse or neglect to follow and obey reasonable orders that are issued for the pro-

(g) No one shall step on or over a moving conveyor. Crossovers shall be provided where necessary.

(h) Riding on conveyors shall be prohibited, other than on authorized man trips approved by the Industrial Commission.

Section 117. CRUSHING, SCREENING AND PROCESSING PLANTS

(a) Machinery, gears, belts, chains, pulleys and exposed shafts shall be equipped with guards where necessary to prevent injury.

(b) Rock crushers shall be effectively screened or guarded to protect employees from flying rock.

(c) Elevated walkways shall be provided with guard railings and toe boards.

(d) Working platforms, access stairways and ramps shall have adequate guards.

(e) Effective dust control measures shall be taken or personal protective equipment used wherever employees are exposed to dust in excessive quantities. (See also Section 20 on Working Atmosphere.)

Section 116. CONVEYORS, CABLEWAYS, ETC.— CONSTRUCTION — OPERATION — MAIN- TENANCE

(a) Suitable overhead protective guards shall be installed to catch falling material that could cause injuries where conveyors pass over working areas, roadways or aisles.

(b) Suitable catwalks, platforms or balconies with stairways or fixed ladders shall be provided at all points in conveyor systems requiring lubrication and servicing that are not otherwise readily accessible.

(c) Passageways under conveyors shall be provided with warning telltales if the clearance is less than 7 feet.

(d) All starting and stopping devices shall be clearly marked and readily accessible.

(e) Head and tail pulleys and drives on conveyors shall be adequately guarded.

(f) Unless impractical, conveyors shall not be serviced or repaired while in operation. When a conveyor is stopped for servicing or repairing, the starting device shall be locked out or tagged. Before the conveyor is restarted, a visual inspection shall be made by a responsible person.

tection of the life, health, safety and welfare of employees.

Section 5. EMPLOYEES TO REPORT UNSAFE CONDITIONS—PROCEDURE

(a) All unsafe or unhealthful operations, processes, conditions, equipment, tools, scaffolds, staging, buildings, or any act or condition considered to be unsafe or unhealthful, shall be reported immediately to the foreman or supervisor in charge of the department or operation where the unsafe or unhealthful condition is believed to exist.

(b) Should the foreman or supervisor fail or be unable or unwilling to take the necessary steps to correct the reported unsafe or unhealthful condition, the matter should then be called to the attention of the safety department or the safety committee, provided there is such a department or committee. If necessary, the matter should be reported to higher officials.

(c) Whenever a complaint concerning an unsafe or unhealthful condition is received by the Industrial Commission, it shall be the policy of the Commission to first ascertain if the above mentioned procedure has been followed. If not, the Commission, at its discretion, shall either investigate the reported condition or call it to the

attention of either the company safety department or the company management, whichever is deemed proper.

(d) Names of persons making complaints or requesting investigation will be withheld if so requested. Anonymous complaints will not be recognized by the Commission.

Section 6. DANGEROUS CONDITIONS TO BE REPORTED

Should there an unusual occurrence or change of conditions such as the appearance of toxic fume or gas, equipment failure, explosion, fire, etc., that has caused illness or injury or that might materially affect the safety or health of the employees, management shall notify the Industrial Commission or one of its inspectors at once.

Section 7. RECORDS OF INJURIES TO WORKMEN—REPORTS

(a) An accurate record shall be kept of all accidents involving an injury to an employee while on duty, whether or not time is lost.

(b) A report of any on-the-job injury resulting in disability or compensable lost time shall be submitted to the Industrial Commission within seven days on a "First Report of Injury" form.

the operator should apply brakes and drop the bucket.

(d) Loader machines should be operated in gear at all times.

Section 115. TRUCKS—HAULAGE AND SERVICE

(a) Brakes, steering gear, tires and operating parts of trucks shall be tested daily, and maintained in safe condition.

(b) Drivers shall not remain in trucks being loaded with a power shovel if the shovel dipper must swing over the cab to load. If the shovel dipper does not pass over the cab, the driver may remain, provided he is adequately protected from the material being loaded.

(c) A completely deflated tire on a truck shall not be reinflated until the truck has been jacked up, the weight relieved, and the locking ring safely secured. Where practical, the tire should be placed in a cage before being inflated.

(d) Bodies of dump trucks shall be blocked or cribbed when in hoisted position before being inspected, serviced or repaired.

addition, the master switch on electric shovels, shall be disengaged before the operator leaves his cab.

(f) Electric shovels: All wiring and electrical equipment shall be installed and maintained according to the applicable rules of the National Electrical Safety Code. Only qualified personnel shall install or repair electrical equipment.

(g) Insulated cable tongs or hooks shall be used in handling energized portable cables or ropes attached thereto.

Section 114. RUBBER TIRED FRONT END LOADERS

(a) Front end loaders should not be operated in such a manner that the center of gravity is shifted to the extent that a tipping hazard is created. (Traveling with a loaded bucket in a high position can cause excessive wobbling.)

(b) When descending steep grades or traveling on highways, loaders shall be operated in the direction that affords the operator the maximum control and visibility.

(c) Proper engine speed is required to maintain steering control of machines equipped with power or power boost steering. If engine fails,

Section 8. FATALITIES MUST BE REPORTED— PERTINENT EVIDENCE TO BE PRESERVED

(a) Fatal accidents must be reported immediately to the Industrial Commission or one of its representatives.

(b) Tools, equipment, material or other evidence that might pertain to the cause of a fatal accident shall not be removed or destroyed until so authorized by the Industrial Commission or one of its inspectors.

Section 9. NOTICE OF INTENTION TO OPERATE OR TO SUSPEND OPERATIONS

(a) Any person, firm or corporation intending to engage in any type of operation subject to the provisions of these safety orders shall give to the Industrial Commission by letter the name and location of the property, the nature and scope of the operation, and the name and address of the official in charge.

(b) Should any operation or facility subject to the provisions of these orders be suspended for six months or more, the Commission shall be so informed. The Commission shall also be notified of intent to resume such operation.

Section 10. SUPERVISORY PERSONNEL AND DUTIES

(a) Management shall inspect or designate a competent person or persons to inspect frequently for unsafe conditions and practices, defective equipment and materials, and, where such conditions are found, to take appropriate action immediately.

(b) Supervisory personnel shall enforce safety regulations and issue such orders as may be necessary to safeguard the health and lives of employees. They shall warn all employees of any dangerous condition and permit no one to work in an unsafe place, except for the purpose of making it safe.

Section 11. FIRST AID TRAINING AND SUPPLIES

(a) Production and maintenance supervisors shall complete a U. S. Bureau of Mines First Aid Course or the equivalent. In underground mines, electricians, cage riders and skip tenders should also receive first aid training.

(b) Every operation under the provisions of these orders shall have an adequate supply of first aid equipment which shall be readily accessible and conveniently located. In the case of underground mines, such supplies shall be located

equipment should be moved well away from banks before repairs are made.

(i) Equipment elevated for repairs shall be adequately supported.

(j) Wherever internal combustion engines are used, exhaust systems shall be inspected frequently and needed repairs made promptly to protect operators from excessive concentration of carbon monoxide, oxides of nitrogen, and other gases.

Section 113. POWER SHOVELS

(a) Shovel operators shall be protected by a cab, screen or other suitable means, in the event a cable should break or material fall from the dipper or bank.

(b) Whenever practical, shovels should be operated with the control side away from the bank.

(c) All persons shall keep a safe distance from the swing of the shovel.

(d) Dippers shall be swung away from the bank and left on the ground when the machine is not in operation.

(e) The master clutch on all shovels and, in

Section 112. HEAVY DUTY MOBILE EQUIPMENT —MAINTENANCE—INSPECTION

(a) No unauthorized person shall be allowed on the operating platform when heavy duty mobile equipment is in operation.

(b) A suitable ladder or steps and hand-holds shall be provided to afford safe and easy access to the operating platform.

(c) Machine operators shall not converse unnecessarily with anyone while operating equipment.

(d) Adequate illumination shall be provided around drills, shovels, pumps, etc. which are operated in open pits between sunset and sunrise. The booms of shovels and draglines shall be well illuminated during night operations.

(e) Machinery should be shut down before oiling or greasing is done. If this is not practical, oil and grease fittings shall be so located or extended that the machine can be serviced safely.

(f) Equipment shall be inspected regularly and maintained in safe operating condition.

(g) Guards shall be provided on equipment where necessary.

(h) Unless impractical, shovels and other

both on the surface and underground. The first aid supplies shall be encased in suitable sanitary receptacles that are reasonably dust-tight and moistureproof. In addition to the material in the cases, splints, blankets and properly constructed stretchers in good condition shall be provided.

Section 12. VISITORS MUST BE ACCOMPANIED

No unauthorized person shall be allowed in any operation covered by these orders. Visitors shall be accompanied by an authorized person familiar with the operation.

Section 13. INTOXICATION IN OR ABOUT OPERATIONS

No intoxicated person shall be allowed to go into or loiter around any operation where workmen are employed, nor shall anyone carry intoxicating liquor into same.

Section 14. NON-ENGLISH SPEAKING EMPLOYEES

Employees who do not understand or speak the English language shall not be assigned to any duty or place where the lack or partial lack of understanding or speaking English might adversely affect their safety or that of other employees.

Section 15. MISCELLANEOUS SAFETY RULES

(a) New employees shall be instructed in safe working procedures and company safety policy.

(b) Warning signs shall be posted in places deemed to be hazardous.

(c) Walks, stairways and runways shall, as far as practical, be kept clear of snow and ice. Slippery places should be sanded or blocked off.

(d) Roads, paths, walkways and manways shall be kept free of obstructions over which persons may stumble. Material shall be stored or piled with ample clearance.

(e) Before old timber or lumber is handled, protruding nails and wire shall be pulled out or safely bent over.

(f) Adequate illumination shall be provided where needed.

Section 16. GUARDING MACHINERY

(a) All moving parts of machinery where workmen may be exposed shall be adequately guarded. Guards should conform to the standards set forth in the American Standards Association Code.

Section 110. MISCELLANEOUS SAFETY RULES

(a) Safe means of access, which employees shall be required to use, shall be provided to all working places. Walkways, trails and roads shall be graded and properly maintained. Guard railings shall be provided where needed; safety ricks or windrows are acceptable for haulage roads.

(b) Warning signs and/or signals shall be used to warn employees of potential dangers, such as blasting, moving equipment, electrical hazards, etc.

(c) Placing clothing, lunch buckets, canteens, etc. on bench towers, switches, utility poles, or other electrical equipment, is prohibited.

Section 111. HEAVY DUTY MOBILE EQUIPMENT OPERATORS—QUALIFICATIONS

It shall be the responsibility of management to see that the operator of any heavy duty equipment such as a locomotive, crane, power shovel, truck, dozer, front end loader, scraper, etc. is qualified physically and properly trained and instructed to operate his machine.

ployee be in doubt as to the procedure to be followed, he should contact his supervisor.

OPEN PIT MINES, QUARRIES, GRAVEL PITS AND SIMILAR OPERATIONS

Section 109. BANKS

(a) The supervisor in charge, or someone designated by him, shall see that all banks are inspected and made safe before men or equipment are permitted to work under them.

(b) Banks shall be suitably sloped and trimmed, dependent upon the kind of rock or material, height of banks, and type of equipment being used. When power shovels are used, if practical, the maximum height of banks should not exceed by 10% the upmost reach of the dipper.

(c) When men are working on banks, suitable bank ropes shall be provided. They shall be safely anchored but not tied to bench towers or other electrical equipment. Safety belts shall also be provided when necessary. Each rope and safety belt shall be inspected by the employee before it is used.

(d) Hard hats shall be worn by all employees working near banks and where there is danger of falling or flying material.

(b) A guard or safety device re-
any machine shall be replaced before
chine is returned to productive operation.

Section 17. STAIRWAYS

(a) Every flight of stairs have 4 or more risers shall be equipped with a stair railing or handrail, the vertical height of which shall not be less than 33 inches nor more than 39 inches from the tread at the face of the riser to the top surface of the rail. Where the stairway is not built next to a wall or partition, rails shall be placed on both sides. If the stairway is closed on both sides, at least one handrail shall be provided. If the width is greater than 4 feet, rails shall be provided on both sides.

(b) Stairways constructed after the effective date of these orders shall not exceed 50° from the horizontal. Steps shall have a maximum rise of 8 inches and a minimum tread of 7 inches.

Section 18. PLATFORMS AND RUNWAYS

(a) After the effective date of these orders, all elevated walks, runways or platforms, except on loading or unloading sides of platforms, if 4 or more feet from the floor level, shall be provided with a substantial 2-bar railing not less

removed from
the ma-

. If the height exceeds 6 feet a substantial toeboard, 3½ or more than ½-inch above the provided to prevent material falling off.

permanent elevated platforms are in use, they shall be equipped with a permanent stairway or ladder.

Section 19. BOILERS AND PRESSURE VESSELS

All boilers and pressure vessels shall be constructed and installed in accordance with the standards and specifications given in the latest edition of the A.S.M.E. Code.

Section 20. WORKING ATMOSPHERE—THRESHOLD LIMIT VALUES OR MAXIMAL ACCEPTABLE CONCENTRATIONS

(a) Wherever drilling or other operations cause excessive quantities of dust in the working atmosphere, effective dust allaying or collecting facilities shall be provided that will keep the dust content at or below the accepted T.L.V. or M.A.C.

(b) The threshold limit values or maximal acceptable concentrations as given in the latest report of the American Conference of Governmental Industrial Hygienists or some other na-

of any kind is prohibited in the vicinity of the loading dome or discharge point.

(c) Employees shall be provided with and required to use proper protective clothing consisting of rubber pants, jackets and hoods. A face shield shall be worn in place of goggles. It shall not be raised or removed until the loading or unloading operations are completed, or the employee is a safe distance from the unit.

(f) Air control and bleed-off valves shall be located a safe distance from the tank, tank truck or tank car. Bleed-off valves shall be located between the tank and the main air control valve. Air pressure shall be released at the bleed-off valve before any of the discharge fittings are disconnected.

(g) The use of air pressure in excess of 30 pounds per square inch for unloading operations is prohibited. If more than 30 pounds of air pressure would be necessary, an acid pump shall be provided.

(h) All fittings shall be inspected for evidence of leaks or other defects before unloading to avoid possible spray when the tank is pressurized. Should leakage occur, the air supply shall be shut off and the pressure bled off before any type of repair is attempted. Should the em-

with and required to use walkways, planking or staging.

(f) ~~No one shall enter any flue, dust chamber, baghouse or furnace unless directed by the supervisor in charge.~~

Section 108. UNLOADING OR TRANSFERRING ACID OR CORROSIVE LIQUIDS

(a) All employees transporting, unloading, transferring or otherwise handling acid or other corrosive liquid shall be properly instructed in safe working procedure and be familiar with applicable company and State safety regulations.

(b) All equipment used for transporting acid and corrosive liquids shall comply with regulations and standards of the Interstate Commerce Commission and the Public Service Commission of Utah.

(c) Emergency showers and eye washing stations shall be provided at each loading or unloading ramp or station. Loading or unloading is prohibited unless the showers and eye washing stations are in good working condition. Employees shall be required to test the emergency showers and eye washing stations before loading or unloading operations are started.

(d) Smoking and the use of open flame lights

tionally recognized authority will be used as a guide in establishing acceptable limits or concentrations.

Section 21. EQUIPMENT FOR PERSONAL PROTECTION

(a) Where eye hazards such as flying objects or particles, dust, fume, mist or injurious light rays are inherent in the work environment, workmen shall be provided with and wear eye protection.

(b) When a workman is exposed to toxic or irritating dust, gas or fume that cannot be controlled by practical means, he shall be provided with and wear U. S. Bureau of Mines approved respiratory equipment.

(c) When a workman is exposed to molten materials, corrosive or toxic chemicals, he shall be provided with and wear suitable protective equipment.

(d) Workmen exposed to the hazard of falling shall be provided with and use safety belts and life lines.

(e) Where provided, employees shall use such equipment as directed and help maintain it in good condition.

(f) Head and foot protection should be required as a condition of employment where their use is advisable.

Section 22. STORAGE OF CALCIUM CARBIDE

Calcium carbide shall be stored only on the surface in waterproof, dry and well ventilated buildings, and shall be contained in the original metal packages. Every precaution shall be taken to prevent water from coming in contact with carbide in storage.

Section 23. WELDING AND CUTTING OPERATIONS

(a) Acetylene generators, welding and cutting torches, regulating reducing valves, pressure gauges, hose and couplings shall be of a type approved by the Underwriters Laboratories of Chicago or Factory Mutual Laboratories of Boston. This equipment shall be inspected regularly and maintained in good condition.

(b) Acetylene generators shall be installed and housed in accordance with the most recent requirements of the National Board of Fire Underwriters.

(c) Acetylene cylinders should be stored in a well ventilated location, and away from open

(d) Equipment used for transferring substances which may cause dermatitis, chemical burns, or other reactions shall be cleaned before repairs are started.

Section 107. BAGHOUSES—FLUES—FURNACES— PRECAUTIONS TO BE TAKEN

(a) Before employees are required to work in a baghouse or flue where there is a possibility of toxic gas or oxygen deficiency, the foreman shall see that the air is tested. If toxic gas is present or there is oxygen deficiency, U. S. Bureau of Mines approved breathing apparatus in good condition shall be used.

(b) No one shall be allowed to enter a baghouse, flue or chamber while it is under pressure, unless emergency rescue equipment is available and someone who has been trained in its use is present at the point of entrance.

(c) A positive lockout or tagging procedure shall be followed to prevent anyone from being accidentally trapped inside a baghouse or flue when the doors are closed.

(d) Protective measures shall be taken before men walk in or on hot flue dust.

(e) When repairs are to be made on top of flues or furnaces, employees shall be provided

Handbook on Accident Prevention and Safe Operating Practices prepared by the Safety Committee of the American Association of Oilwell Drilling Contractors shall be used as a guide for the construction, operation, maintenance and inspection of oil and gas wells.

(b) Oil and gas wells that penetrate mining property shall be protected by a substantial pillar, subject to the approval of the Industrial Commission. The owners of such wells shall, upon request, furnish to the operator of the mine a map showing their location.

SMELTERS, REFINERIES, MILLS, CONCENTRATORS AND SIMILAR OPERATIONS

Section 106. MISCELLANEOUS SAFETY RULES

(a) No employee shall be required to work in or around hot furnaces or receptacles containing molten metals unless adequate safety and health precautions have been taken.

(b) Ice, snow, water and wet material shall be removed from pots, kettles and ladles before being filled with molten metal, matte, slag, etc.

(c) Containers used for transporting or storing acid, alkali and other chemicals shall be properly labeled and covered.

flames, heating devices and other sources of heat. All cylinders shall be placed upright and securely fastened.

(d) Operators of electric or oxyacetylene welding and cutting equipment shall take necessary precautions to prevent fires. Extinguishers, water hoses or buckets of sand shall be readily available.

Section 24. STORING FLAMMABLE MATERIALS —OIL HOUSES—TANKS

(a) The building or room in which oil, grease and flammable solvents are stored shall be of fire resistant construction and well ventilated.

(b) Oily rags, oily waste and waste paper shall be kept in closed metal containers until removed for disposal.

(c) Smoking shall be forbidden in or around oil houses or other places where such practice might cause a fire.

(d) Larger quantities of oils and solvents shall be stored in properly identified tanks or containers, with vents and taps properly protected, in places a reasonable distance from any other building, and 100 feet from any mine opening, and at least 200 feet from any explosives magazine; provided, however, that such flam-

mable materials, if stored in tanks provided with proper vents containing flash-back arrestors, and buried at least 3 feet below the surface of the ground, shall then be at least 50 feet from any mine opening. No tank shall be installed from which liquid fuel is to be conducted by gravity to the point of combustion unless there be installed between the tank and the point of combustion a conspicuous, simple and reliable cutoff valve which can be quickly and conveniently reached.

(e) Provisions shall be made to prevent flammable liquids which may accidentally drain from storage from flowing toward buildings, mine openings, etc.

Section 25. TANKS, CARS, STORAGE VESSELS— GAS, WATER, AND SEWER MAINS

No one shall be permitted to enter any tank, tank car, tank truck, storage vessel, gas, water or sewer line where explosive or toxic liquids or gasses may exist, or where there may be oxygen deficiency, without first testing the air. When work must be conducted in these areas, approved type breathing apparatus shall be readily available, and a man or men trained in the use of rescue equipment shall be in a standby position.

the shaft shall be left until such time as the shaft is to be abandoned.

Section 103. ABANDONED MINES TO BE GUARDED

Surface openings to shafts, tunnels, slopes and drifts that are to be abandoned shall be adequately closed, covered, or fenced off.

Section 104. MINING, MILLING AND PROCESS- ING RADIOACTIVE ORES

(a) The working places of every underground uranium mine shall be provided with sufficient mechanical ventilation to maintain radon daughter concentrations at acceptable levels whenever the mine is being operated.

(b) The atmospheric concentration of radon daughters where men work should not exceed 300 micro curies per liter (WL) as determined by the field method detailed in the American Standard for Uranium Mines N7-1 1960, and every operator shall make a reasonable effort to attain said standard.

Section 105. OIL AND GAS WELLS—PILLARS TO PROTECT MINING PROPERTY

(a) The latest edition of the Rotary Drilling

tal shall be provided with chute and manway compartments. Bulkheads shall be used to protect the manway compartment. The Industrial Commission may approve the use of mechanical raise climbers, suspended cages, or similar equipment.

(d) Manways and drifts intersecting stopes or raises where the danger of falling material exists shall be adequately protected. No person shall be allowed to enter any raise or manway until he ascertains that such manway is in the clear and safe to climb. No one shall be permitted to climb any manway when materials are being hoisted or lowered.

Section 100. CHUTE AND PINCH BARS

Only bars blunt on one end or having a ring type handhold shall be used at loading chutes or for barring down loose rock.

Section 101. MINE MAP

An accurate map which shows clearly all of the mine workings shall be made and brought up-to-date at least annually.

Section 102. SHAFT PILLAR SECTION

A pillar section sufficiently large to protect

Section 26. BINS, CHUTES, DRAW HOLES— STORED MATERIAL—GRIZZLIES

(a) Employees shall be furnished with and required to use approved type safety belts and safety ropes before entering any bin, chute or storage place containing material that might cave or run. Cleaning and barring down in such places shall be started from the top. No employee shall be permitted to work at any time where there is danger of being covered with caving material.

(b) Employees shall not be permitted to work on top of material stored or piled above chutes, draw holes or conveyor systems while material is being withdrawn.

(c) Chutes, bins, drawholes and similar openings shall be equipped with grizzlies or other safety devices that will prevent employees from falling into the openings.

Section 27. CABLES, ROPES, CHAINS, CHOKERS, SLINGS, HOOKS, ETC.

Cables, ropes, chains, chokers, slings, hooks and similar lifting equipment shall be regularly inspected. If found defective, they shall be taken out of service immediately.

REGULATIONS ON EXPLOSIVES— USE, STORAGE, ETC.

Section 28. SURFACE MAGAZINES

(a) After the effective date of these orders, surface magazines for storing and distributing explosives in amounts exceeding 150 pounds shall be:

1. Constructed of incombustible material or covered with fire resistant material.
2. Theft, bullet and water resistant.
3. Equipped with no openings except for entrance and ventilation.
4. Provided with doors constructed of 3/8-inch steel plate lined with a 2-inch thickness of wood, or the equivalent, with hinges and hasps attached inside of doors. Locks shall be equivalent to the strength of a 5-tumbler jar proof lock.
5. Provided with offset type ventilators, effectively screened.
6. Provided with floors made of wood or other nonsparking material, and with no metal exposed inside the magazine.
7. When illuminated electrically, provided with explosion-proof light bulbs and fixtures

by means of a dam or wall unless approved by the State mine inspector.

Section 98. TIMBER AND GROUND SUPPORTING MATERIAL

(a) Every shaft, incline, stope, adit, tunnel, level, crosscut, drift and other working place in a mine shall, when necessary, be kept securely timbered or otherwise supported.

(b) If necessary ground supporting material cannot be supplied when required, it shall be the duty of the mine forman to remove all employees from the working places until the material is available.

Section 99. FLOORING IN STOPES—OPEN HOLES—WINZES—RAISES—MANWAYS

(a) In timbered stopes, the working floors shall be closely and securely covered. Manway openings shall be protected with railings. Open chutes, pockets and fills shall be protected with grizzlies and, when necessary, with removable covers.

(b) Winzes shall be started and raises shall be holed to one side of drifts.

(c) All raises 45° or more from the horizon-

Section 95. FIRE DOORS

At any underground operation where a fire may occur and cut off escape of men from a working place, fire doors shall be provided to control air currents and lessen the possibility of suffocation.

Section 96. VENTILATION

When men are employed underground, an adequate volume of fresh air shall be supplied to all working places.

Section 97. PROTECTION AGAINST INRUSH OF WATER

(a) When mining where an inrush of water might be encountered, holes shall be drilled at least 50 feet in advance of the working face.

(b) Where there is danger of sudden inrush of water, provisions shall be made for the construction of such bulkheads, water doors, drifts or workings as will insure the escape of the workmen. All sumps and places for the storage of water shall be constructed so as to insure the safety of men working below.

(c) Water shall not be impounded in a mine

installed in conformance with the National Electrical Code.

(b) Explosives in amounts of 150 pounds or less shall be stored in accordance with the preceding standards, or in separate locked box type magazines, which shall be.

1. Constructed strongly of 2-inch hardwood or the equivalent, with no metal exposed inside.

2. Anchored securely when located outside a building.

Section 29. LOCATION OF SURFACE MAGAZINES

Surface magazines constructed after the effective date of these orders shall, unless otherwise authorized by the Industrial Commission, be located at least 200 feet from any inhabited building, mine opening, railway or public road. Magazines containing more than 500 pounds of explosives shall be located in accordance with the distances recommended in the "American Table of Distances". Where compliance with these provisions is impractical, the magazine shall be effectively barricaded.

Section 30. SURFACE STORAGE OF DETONATORS

(a) Detonators shall be stored separately from explosives. A box type magazine is permitted for storing 5,000 detonators or less. More than 5,000 shall be stored in an approved building type or hillside type magazine.

(b) Detonator magazines containing more than 100 detonators shall not be located less than 50 feet from an explosives magazine; magazines containing less than 100 may be located not less than 25 feet from a box type magazine containing less than 150 pounds of explosives.

Section 31. PRECAUTIONS IN AND AROUND MAGAZINES

(a) Explosives shall not be stored in a building containing highly flammable materials such as oil, grease, gasoline and waste paper, nor within 20 feet of a stove, furnace, open fire or flame.

(b) No smoking, matches, open light or flame of any kind shall be permitted in or around a magazine, at an explosives distributing station, or while handling powder. Where electric lights are not provided in a magazine, only permissible type lights may be used.

Section 92. WASTE TIMBER AND COMBUSTIBLE RUBBISH—USE OF CANDLES

(a) Waste timber, boxes and other combustible material shall not be permitted to accumulate in any working in a mine unless it is buried in fill material.

(b) When candles are used in dry, timbered sections of a mine to test the air, care shall be taken that the flame does not contact the timber or other combustible material.

Section 93. ELECTRIC HEATERS

Electric heaters shall be protected with suitable guards to prevent combustible material from coming within 8 inches of the heating element.

Section 94. FIRE PROTECTION AT UNDERGROUND ELECTRICAL STATIONS

Fire extinguishers of a type approved for electrical fires shall be kept at all underground electrical stations, and they shall be inspected at least annually by a competent person designated by management. An accurate record of the inspections shall be kept.

air flow for each brake horsepower of diesel engine in operation. Ventilation and operating conditions shall be such that atmospheric contaminants do not exceed the threshold limit values as established by the latest edition of the American Conference of Industrial Hygienists.

(c) Where a fire hazard exists, engine exhaust gas shall be effectively cooled with a scrubber, flame arrestor, or other means.

Section 91. USE OF OIL UNDERGROUND—GASOLINE PROHIBITED UNDERGROUND

(a) Unless special permission has been obtained from the Industrial Commission, the amount of oil stored underground should not exceed normal 24 hour requirements. Oil shall be stored in an untimbered section of the mine wherever practical. Otherwise, the storage area shall be adequately protected against fire hazards.

(b) The storage and use of gasoline underground is forbidden except under conditions as may be approved by the Industrial Commission.

(c) The underground use of gasoline, propane or butane burning engines of any size or type is prohibited.

(c) The area around magazines shall be kept free of rubbish, dry grass, and other combustible materials.

(d) Surface magazines shall be plainly identified by signs posted near but not on the surface walls or doors of the magazine.

(e) Surface magazines shall be kept securely locked at all times when not in use.

(f) No person shall be allowed to loiter around magazines.

Section 32. STORING EXPLOSIVES UNDERGROUND

(a) No more than 48 hours supply of explosives shall be stored underground in an active mine without first obtaining permission from the Industrial Commission.

(b) Underground magazines shall be so located that an accidental explosion of the magazine would not prevent the escape of the miners.

(c) All explosives and detonators within a mine shall be kept in the original case or suitable insulated containers, and shall be removed only as required for immediate use. Explosives shall be kept a safe distance from roadways, track and electric conductors.

Section 33. USING EXPLOSIVES

(a) Only competent and experienced persons authorized by the supervisor in charge shall be permitted to handle explosives and to do blasting.

(b) Only authorized personnel shall enter underground magazines.

(c) It shall be the duty and responsibility of the person authorized to do the blasting to sound warnings and effectively guard the approaches to the area where the charge is to be fired.

(d) When supplies of explosives or fuse are removed from a magazine, the earliest dated should be taken first. Packages of explosives shall be removed a safe distance from the magazine before being opened. No package shall be opened with any metallic instrument other than an approved nonsparking type.

(e) Only wooden or other nonconducting tamping bars shall be used for charging and tamping explosives in boreholes.

(f) Detonators shall be removed from the original containers only as they are needed for capping fuses.

(g) All unused caps, capped fuse and electric detonators shall be returned to the magazine at the end of the shift.

(e) Motormen shall sound an alarm upon approaching curves, doors, portals, sidetracks, crossings, and places where persons are or are likely to be.

Section 89. MAN TRIP TRAINS—MAINTENANCE—INSPECTION

(a) Only qualified motormen shall operate man trip locomotives. (See Section 86 for qualifications.)

(b) All trains used to convey men to and from work shall be maintained in safe condition, and they shall be inspected at least every three months.

(c) Man trip trains shall always be pulled.

Section 90. DIESEL POWERED EQUIPMENT USED UNDERGROUND

(a) Diesel powered equipment may be used underground in well ventilated areas, providing a permit to use such equipment is obtained from the Industrial Commission of Utah. Application forms are provided by the Commission. A permit is required for each unit.

(b) Wherever diesel engines are used underground, there shall be a minimum of 150 cfm of

Section 87. TRACKAGE—CLEARANCE FOR MEN

Track haulage roads or slopes shall be suitably constructed for the speed, weight and type of haulage equipment to be used. Wherever possible, track haulageways traveled by persons walking shall have sufficient clearance on one side to permit haulage equipment to pass with safety. If this is not practical, shelter holes shall be provided at safe intervals. Adequate clearance shall also be provided at switches.

Section 88. LOCOMOTIVES—WARNING DEVICES —TRIP LIGHTS—MOTORMEN

(a) Each locomotive shall be equipped with an audible warning device and a headlight which function properly.

(b) All trains shall be equipped with a trip light or approved red reflector on the rear end when being pulled and on the front end when being pushed. Wherever practical, trips shall be pulled rather than pushed.

(c) Whenever trains or locomotives follow other trips, a safe distance shall be maintained from the rear end of the preceding trip.

(d) Motormen shall not run locomotives with defective brakes.

Section 34. DISPOSAL OF DETERIORATED EXPLOSIVES AND DETONATORS

Explosives, detonators or fuses that have been damaged or have deteriorated shall be destroyed. When a considerable quantity of explosives or detonators are to be destroyed, it shall be done in accordance with the recommendations of the manufacturer.

Section 35. FUSE BLASTING PRECAUTIONS

(a) At least one inch shall be cut from the end of the coil before attaching the cap with a crimper. The practice of crimping fuse with a knife or teeth is forbidden.

(b) No fuse spitter or ignition device shall burn longer than one-half the time required for the shortest fuse in the round to burn.

(c) When over 10 holes are blasted with fuse and caps, igniter cord and connectors shall be used.

Section 36. ELECTRICAL BLASTING

(a) Blasting units shall provide at least 5 amperes of current. The number of shots to be fired shall not exceed the rated capacity of the firing unit.

(b) Blasting machines or battery operated devices used to fire shots shall be provided with a detachable handle, connecting plug, key, or other acceptable means to prevent inadvertent firing. Such devices shall be in the possession of the person designated to fire shots.

(c) When large blasts are detonated electrically, they shall be fired from a power circuit of ample capacity. At least one, preferably two or more safety switches shall be placed in power circuits used for shot firing. Double-pole, double-throw switches are recommended because they facilitate short-circuiting while shots are being prepared. The blasting switch (double-pole, double throw safety switch) at the firing station shall be attached to the main switch by means of a detachable jumper. When the jumper cable is detached from the main switch, at least a 5-foot gap shall be provided between the power source and the leading wires as protection against lightning, static charges, or voltage surges that may travel along the power lines. (The main switch as used in these rules means the switch attached to the power source, which is equipped with the proper fuses or equivalent overload protection.)

(d) The switches in the firing circuit shall be of a type that can be locked, and the keys to the locks shall be entrusted only to the person designated to fire shots. A safe sequence shall

adequately insulated where they cross power lines and trolley wires.

Section 86. QUALIFICATIONS FOR HOISTMEN AND MOTORMEN WHO TRANSPORT MEN

Hoistmen and motormen who regularly transport men in shafts or along slopes, planes, raises or inclines, or along main haulage roads on the surface and underground, shall undergo physical examinations to determine their physical fitness before being assigned to such duties, and at least annually thereafter. A copy of the examining physician's report, on a form provided by the Industrial Commission, shall be returned to the mine superintendent or other authorized official who, if satisfied as to the general competency of such person to perform such duties, shall so certify on that copy and forward it to the Industrial Commission. The Commission, if satisfied as to the applicant's fitness to perform such duties, shall issue an appropriate certificate. Hoistmen certificates shall be posted in the hoist rooms, and motormen certificates in a suitable and conspicuous place at the mine. Certificates shall expire on the first day of January each year. Applications for certificate renewal shall be submitted to the Industrial Commission within 30 days preceding expiration date.

shall raise it at least 5 feet above the floor of the level.

8. He shall position the cage, skip or bucket between levels when turning the hoist over to the relief hoistman.

9. He shall at all times be in immediate charge of his hoist, and shall not delegate any of his duties to anyone other than a hoistman apprentice assigned to him for training.

10. He shall not read or converse with anyone while operating the hoist or attending to signals.

11. He shall familiarize himself with and use the code of signals as given in Section 83.

12. Upon receiving a blasting signal, he shall not leave the hoist or acknowledge other signals until he has hoisted the men to safety.

Section 85. OTHER COMMUNICATION SYSTEMS

(a) Where underground workings are extensive, it is recommended that a telephone system or other means of oral communication be provided between the surface and each level.

(b) Underground telephone lines and signal wires should be installed on the opposite side from power lines and trolley wires. They shall be

be established for closing the switches in the firing circuit while retreating to the firing station.

(e) Short wave radio equipment should not be used in the immediate vicinity of electrical blasting operations.

(f) Blasting lines shall be protected from possible stray currents or other sources of electricity. All loading shall be stopped when the presence of static electricity or stray currents is detected, until the condition is remedied or no longer exists.

(g) Underground blasting lines shall be provided with plug-in type crossover safety connectors for each heading.

(h) The ends of blasting lines shall be kept short-circuited until the shot is ready for blasting. The leg wires of the detonators shall be kept short-circuited until ready to be connected for blasting.

(i) Only the person designated to fire the shots shall connect the leads to the blasting unit.

Section 37. MISSED HOLES—MISFIRES

(a) Where multiple blasting shots are fired by fuse primers, it shall be the responsibility of

the person doing the blasting to count the shots. When it is not certain that all charges have exploded, no one shall be permitted to enter the blasting area until 45 minutes have elapsed, and then only a minimum number of personnel should be allowed in the area.

(b) When blasting electrically and a misfire occurs, no person shall be permitted to enter the area until the blasting lines have been disconnected from the sources of electrical energy and shorted (shunted), and a 5 minute interval has elapsed.

(c) When a misfire occurs, if possible, a new primer shall be placed on top of the charge and blasted. When this is not possible, explosives may be washed out with water, using a plastic or other nonmetallic nozzle, or a new hole may be drilled not less than 2 feet from the missed hole and pointed at an angle to eliminate any danger of drilling into the missed hole. The new hole shall then be charged and fired.

Section 38. DRILLING BELOW MUCK PILE

Miners shall not be permitted to drill holes that will extend below the level of the top of any muck pile lying against the face being drilled.

2. He shall run his hoist with increased caution whenever men are being transported, and shall not operate it at a speed greater than the rate posted in the hoist room.

3. He shall hoist or lower men slowly past stations where chairs are installed.

4. After a hoist has been stopped for any purpose exceeding 2 hours, he shall run the cage, skip or other conveyance at least one round trip in each hoisting compartment before transporting men.

5. He shall do no hoisting in a shaft while repairs are being made in the hoisting compartment, except as necessary to make repairs.

6. He shall not lower a cage, skip, bucket or other conveyance directly to the bottom of the shaft when men are working there. The conveyance shall be stopped at least 15 feet above the bottom of the shaft until the signal to lower is given by one of the men in the bottom of the shaft.

7. Whenever a cage, skip or bucket is in a position that men can step into it, he shall remain at his hoist to answer signals. He shall not leave the conveyance at a level or landing after the release signal has been given, but

skip or cage 2 feet and then lowering it. After receiving the 4 bell signal, the hoistman shall not leave the hoist or acknowledge other signals until he has received the 1 bell signal and has hoisted the men to safety.

4. When the same signaling system is used to call the cage and to signal the hoistman, no one other than the cage rider shall give any signal without first ringing 7 bells, unless the cage or bucket is at his level.

5. The 9 bell signal, indicating danger or accident, should be followed by the appropriate level signal.

Section 84. HOISTMEN'S RESPONSIBILITIES

(a) Where men are regularly transported by hoists, a qualified hoistman shall be readily available when any person is underground, except that a hoistman shall not be required for automatically operated cages or platforms.

(b) Every hoistman employed at a mine in Utah shall observe the following rules:

1. He shall keep careful watch over the hoist, the rope and safety devices under his charge, and shall report any defects. He shall not hoist or lower men if there is any defect in the hoist or its safety devices.

Section 39. SIMULTANEOUS LOADING AND DRILLING

The loading or placing of explosives in drill holes within 10 feet of machine drilling operations is prohibited. Simultaneous loading and drilling is prohibited in the working face of any tunnel, shaft or raise, regardless of size.

Section 40. BLASTING DURING SHIFT

Blasting underground during the shift should be avoided. Where blasting is done before the end of the shift, working places shall be cleared of smoke and dust before men return.

Section 41. APPROACH OF HEADINGS

When two headings approach each other and are within 20 feet of connecting, the blasting time shall be coordinated. The headings shall be mucked clean and carefully examined for missed holes after each round and before drilling is begun in either face.

Section 42. TRANSPORTING EXPLOSIVES UNDERGROUND

(a) Explosives shall not be carried on an electric locomotive.

(b) No one except the train crew shall be allowed to ride on a train carrying explosives.

(c) If explosives and detonators are hauled in the same car or container, they shall be separated by at least 4 inches of firmly fastened hardwood partition or the equivalent.

AMMONIUM NITRATE—AMMONIUM NITRATE/FUEL OIL MIXTURES

Section 43. AMMONIUM NITRATE—TRANSPOR- TATION AND STORAGE

(a) Unsensitized ammonium nitrate shall be transported in accordance with State and Federal regulations.

(b) Surface storage of ammonium nitrate shall comply with the provisions of the most recent Manufacturing Chemists Association Manual A-10.

Section 44. BLASTING AGENTS

(a) **BLASTING AGENT** shall mean any material or mixture consisting of a carbonaceous material and oxidizer, intended for blasting, not otherwise classified as an explosive, and in which none of the ingredients are classified as an ex-

(d) LEVEL SIGNALS

2-1-2 bells	Repeat signal
2-1 bells	1st Level
2-2 bells	2nd Level
2-3 bells	3rd Level
2-4 bells	4th Level
2-5 bells	5th Level
3-1 bells	6th Level
3-2 bells	7th Level
3-3 bells	8th Level
3-4 bells	9th Level
3-5 bells	10th Level
4-1 bells	11th Level—and so on.
1-2-1 bells	Cage release

Special signals not in conflict with the above may be established.

(e) SIGNALING RULES

1. When men are to ride on a trip or cage, they shall be on the conveyance before any signals are given.

2. In giving signals, strokes of the bell shall be made at regular intervals. The pause should take the same time as one stroke of the bell.

3. When the 4 bells is given (meaning ready to shoot in the shaft), the hoistman shall acknowledge the signal by hoisting the bucket,

ing, the signals can be seen or heard on all other working levels served by the same shaft.

Section 83. SIGNAL CODE AND RULES

(a) The signal code and rules, printed on sheet metal, cloth or substantial pasteboard not less than 12 inches wide by 36 inches long, shall be placed at each level, at the collar of the shaft, and in the hoist room, in such a position that they may be easily seen.

(b) In addition to posting the signal code and rules, a sign board showing the level and level signal shall be placed at each station.

(c) CODE

1 bell	Hoist
1 bell	Stop, if in motion
2 bells	Lower
3 bells	Men on, hoist slowly to surface
4 bells	Ready to shoot in the shaft
5 bells	
6 bells	
7 bells	Someone other than cager is ringing bell
8 bells	
9 bells	Danger or accident

plosive, provided that the finished product cannot be detonated by means of a No. 8 test blasting cap when unconfined.

(b) Ammonium nitrate sensitized with fuel oil or other carbonaceous material is classed as a blasting agent.

Section 45. MIXING BLASTING AGENTS—RESTRICTIONS—COMPOSITION

(a) Mixing blasting agents shall not be permitted underground in mining operations.

(b) Mixing blasting agents while in transit on public roads or thoroughfares is prohibited.

(c) When blasting agents are to be used underground, positive mechanical mixing or other method approved by the Industrial Commission shall be utilized to insure a homogenous mixture.

(d) The proportion of carbonaceous material and oxydizer in a blasting agent should be such that there is a proper oxygen balance. Field mixing of blasting agents of unusual composition should be done only by qualified persons under controlled conditions.

(e) No fuels more volatile than No. 2 diesel fuel shall be used in AN/FO mixtures. Crude oil and crankcase oil shall not be used. The fuel

oil content of AN/FO for underground use should range between 5.5% and 6.5%.

Section 46. MIXING PLANTS—STORAGE WAREHOUSES OR MAGAZINES

(a) Mixing plants and storage warehouses or magazines shall be isolated from inhabited buildings, railroads and highways according to the American Table of Distances for Explosives.

(b) Floors shall be of concrete or other non-porous and noncombustible material.

(c) Buildings shall be of fire resistant construction such as brick, block, steel, sheet metal on wood studdings, etc.

(d) Floor drains shall be of open construction so that molten material cannot be confined in case of fire.

(e) All electric switches, controls, motors and lights located in the blasting agent mixing or storage area shall conform to the requirements of Class II, Division 2 of the most recent edition of the National Electrical Code; otherwise, they shall be outside. The frame of the mixer and all other equipment that may be used shall be electrically bonded together and provided with a continuous electrical path to ground.

cage, car, skip or bucket that is loaded with powder, tools, timber or other material.

(c) All timber, tools, etc. to be hoisted or lowered shall be securely lashed when necessary so they cannot catch on the sides of the shaft while in transit.

Section 82. SIGNALING SYSTEMS

(a) At least one and preferably two independent means of signals shall be provided between the hoistroom and the top, bottom and intermediate landings of shafts, winzes, slopes and inclines. With two, at least one shall be audible to the hoistman.

(b) Bell ropes hung in shafts through which men are hoisted or lowered, not incased in conduit, shall be equipped with stops or catches at least every 50 feet to prevent them from falling into the shaft in case of breakage.

(c) All mines that have a cage tender shall install and maintain, in addition to the system for signaling the hoistman, a separate system by which the cage may be called for from any working level, and by which the hoistman can signal to any working level. Such signaling system shall be so arranged that when any person is calling the cage from any level, or the hoistman is signal-

Section 80. HOISTING SPEED—NUMBER OF MEN IN CAGES

(a) Mine management shall establish for each shaft rates of speed which shall not be exceeded when men are hoisted or lowered, and a notice of such limitation shall be posted near each hoist.

(b) Mine management shall determine the maximum number of men that may safely ride in any cage, skip or bucket used in the mine, and shall permit no more than that number to ride in such conveyance.

Section 81. CAGE TENDERS AND RIDERS—HOISTING MATERIAL

(a) In every mine operating on two or more levels in which 25 or more men are employed underground or any one shift, the cage or other conveyance shall be in charge of a cage tender or rider, and no other person shall give any signal for the movement of the conveyance when men are being hoisted or lowered at the change of shift. The cage tender shall have authority to prevent crowding or scuffling of men in the vicinity of the shaft.

(b) No person, other than those who are to do the unloading, shall be permitted to ride any

(f) The design of the mixer should minimize the possibility of frictional heating, compacting, and especially confinement. Bearings and gears shall be protected against the accumulation of product dust, and all surfaces shall be accessible for cleaning.

(g) Floors and equipment in mixing plants shall be washed down, if practical, or otherwise cleaned as needed to prevent excessive accumulation of the plant product or any of its ingredients. Storage room and magazine floors shall be kept free of accumulations of any such material.

(h) All discarded ammonium nitrate or AN/FO bags and other trash shall be disposed of daily in a safe manner.

(i) Open flames, matches or smoking shall not be permitted in the mixing plant or storage area. Provided however, that when welding or cutting with an acetylene or electric torch is necessary, the immediate area where the work is to be done shall be thoroughly cleared and cleaned before welding or cutting is started. Special precautions shall be taken to keep hot sparks, hot metal or slag from contacting the blasting agent or any ingredient thereof.

(j) In the event of fire in the mixing plant

or storage facilities, the areas should be evacuated and no attempt made to fight the fire, unless sufficient water can be applied immediately to control it in its incipient stage. (The use of copious quantities of water is the most effective method of controlling such fires in their early stages. Commercial type fire extinguishers are ineffective.)

(k) When ammonium nitrate is stored with AN/FO, or if either is stored with explosives, the total weight of the products so stored shall be considered as an explosive for compliance with the American Table of Distances. These products, when stored together, shall be separated by at least 24 inches.

(l) Neither ammonium nitrate nor blasting agents shall be stored with flammable substances, acids, chlorates, perchlorates, nitrites, permanganates, sulphur or finely divided metals.

(m) Blasting agents packaged for sale shall be clearly labeled and show the mixing date.

Section 47. LOADING EQUIPMENT

(a) Where electric primers are used, all pneumatic and air-pressure equipment used for loading blasting agents shall be grounded by means

point of descent of the operating cage or skip. Other methods shall be subject to Industrial Commission approval.

(c) In shafts where the inclination from the horizontal is greater than 45°, shaft doors shall be provided to prevent material from falling into the shaft while the bucket or skip is being dumped.

(d) When sinking shafts beyond 50 feet, electric detonators shall be used for blasting.

Section 78. PASSAGEWAYS IN SHAFTS

Passageways shall be provided around shafts at stations and skip pockets. Entering or crossing the hoisting compartment of a shaft, except for the purpose of inspecting or making repairs, is prohibited.

Section 79. INSPECTION OF SHAFT COMPARTMENTS

All compartments of shafts used for hoisting and lowering men shall be inspected at least once each week to see if there are any defects or other unsafe conditions, which, if found, shall be promptly corrected. A written record of the inspections shall be kept, which shall be open for examination by the State mine inspector.

Section 75. SAFETY DEVICES FOR SKIPS USED IN INCLINES

Where skips are used in inclined shafts or winzes having a dip of 50° or greater, they shall be provided with a safety shoe attached to a steel guide in the center of the track to prevent derailment, or with some other equally effective device.

Section 76. GUARDING SHAFT OPENINGS

The top and all stations of vertical shafts and winzes shall be enclosed with a substantial gate or guard railings.

Section 77. SHAFT SINKING—GUIDES—CROSS-HEAD—BULKHEADS—SHAFT DOORS—BLASTING

(a) In sinking operations where men are conveyed by bucket through a vertical shaft more than 50 feet deep, a crosshead shall be used, the height of which shall be at least 50% greater than the width. The shaft shall be equipped with suitable guides for the crosshead. Other methods shall be subject to Industrial Commission approval.

(b) When deepening an operating shaft, the men in the bottom shall be protected by means of a bulkhead located 15 feet below the lowest

of a separate and satisfactory static dissipating ground.

(b) ~~Where electric primers are used, loading tubes shall be of high resistance tubing capable of dissipating static and incapable of transmitting a stray current. Metal or low resistance loading tubes are not approved.~~

(c) Where electric primers are used, all loading shall be stopped when the presence of static electricity or stray currents is detected until the condition is remedied or no longer exists.

(d) Where grounding is required, the blasting agent hopper, pickup apparatus, fittings, discharge hose, and loading tube shall form a continuous electrically conductive path to a ground. Water lines, air lines, fan lines, rails or the permanent grounding system shall not be used as a ground.

(e) Loading equipment mounted on a car and rails must be thoroughly insulated from the car and rails.

(f) When capped fuse is used, the primer shall be placed at or near the bottom of the hole before the blasting agent is charged.

(g) Capped fuse should only be handled by a person who has not previously been operating jet loading devices, unless that person has taken

care to ground himself by touching the wall rock or a metal conductor, such as an air or water line or rail.

(h) All loading equipment shall be removed from the blasting area before the loaded holes are tied in for blasting.

Section 48. ADDITIONAL REGULATIONS PERTAINING TO BLASTING AGENTS

All regulations pertaining to the storage, transportation and use of explosives, both surface and underground, shall also apply to blasting agents if not in conflict. (See Sections 28 through 38.)

ELECTRICAL POWER—SURFACE AND UNDERGROUND

Section 49. SURFACE TRANSMISSION LINES

(a) Overhead high-potential power lines shall be placed at least 18 feet above the ground and 20 feet above driveways and haulageways, shall be installed on insulators, and shall be supported and guarded to prevent contact with other circuits.

(b) Surface transmission lines, including trolley circuits, shall be protected against short

4. Equipped with safety bars and gates.

Section 73. CAGES SUSPENDED FROM A SINGLE ROPE IN VERTICAL SHAFTS—SAFETY DEVICES

(a) Cages and skips suspended from a single rope, which are to transport men, shall be equipped with safety devices that will effectively stop the cage in case of rope or equipment failure. Such devices shall be maintained in good condition, and be drop tested at least once each month. They shall be equipped with bridle chains or ropes that serve as a secondary connection between the cage and ropes.

(b) Cage guides shall be kept in proper alignment and securely fastened, and they shall not be worn to the extent that safety catches would not get full grip.

Section 74. CAGES SUSPENDED FROM MULTIPLE ROPES

Cages that are to be suspended from multiple ropes, and all appurtenances thereto, which are to transport men, shall first be approved for that use by the Industrial Commission.

rope shall be as follows:

500 feet or less	—8
500 feet to 1000 feet	—7
1000 feet to 2000 feet	—6
2000 feet to 3000 feet	—5
over 3000 feet	—4

Section 71. HEADFRAMES

All headframes constructed after the effective date of these orders shall be of sufficient height to allow at least 15 feet of clearance from the bottom of the sheave or drum and the highest point reached by the top of the cable connection to the cage or skip.

Section 72. CAGES FOR TRANSPORTING MEN IN VERTICAL SHAFTS

(a) Where mine shafts are deeper than 100 feet, cages shall be used for transporting men, and they shall be:

1. Of substantial construction.
2. Equipped with steel bonnets that cover the entire platform.
3. Constructed with sides enclosed to a height of at least 56 inches from the platform.

circuits and lightning. Each exposed power circuit that leads underground shall be equipped with lightning arrestors of approved type at the point where the circuit enters a mine.

Section 50. DIAGRAM—MAJOR CIRCUITS

A diagram of major electrical circuits feeding surface and underground facilities shall be readily available on the surface at each mine, for information purposes in case of an emergency situation. The diagram shall show the location of all substations, transformer stations, motor generators, rectifiers, battery charging stations, pumping stations, circuit breakers, switchboards and main switches.

Section 51. SURFACE AND UNDERGROUND TRANSFORMER STATIONS

(a) Transformers shall be enclosed in a transformer house or surrounded by a suitable fence at least 6 feet high. If the enclosure or fence is of metal, it shall be grounded effectively. The door or gate to the enclosure shall be kept locked except when authorized persons are present.

(b) Transformers containing flammable oil and installed where they present a fire hazard

shall be provided with means to drain or to confine the oil in event of rupture of the transformer casing.

(c) All transformers ordered after the effective date of these orders for use underground shall be air cooled or filled with nonflammable liquid or inert gas.

(d) Approved "DANGER" signs shall be posted conspicuously at all transformer stations on the surface and underground.

(e) All transformer stations on the surface and underground shall be kept free of nonessential combustible materials and refuse.

(f) Suitable insulating poles, hooks or other gear shall be provided and maintained in good condition for the removal and replacement of fuses and the operation of disconnecting switches.

Section 52. POWER CIRCUITS

(a) All power wires and cables shall have adequate current carrying capacity, shall be protected from mechanical injury, and with the exception of trailing cables and power cables connected to junction boxes, shall be installed in a permanent manner.

the socket or clips, (2) where the rope rests on the sheave, and (3) where the rope leaves the drum at both ends—and calipered at these points every 60 days. The examiner should stand where he can see the rope, and the rope speed should not exceed 50 feet a minute during the inspection.

(d) Resocketing or refastening shall be done at least every 12 months, or immediately if a broken wire or other serious defect is noted near the socket or clips. 4 to 10 feet of rope should be cut off when a fastening is changed. The piece of rope cut off should be examined for internal wear and corrosion and, if such is found, another piece of rope should be cut off and examined.

(e) A rope shall be replaced immediately when inspection discloses: (1) 6 broken wires in one lay, (2) 35% wear in the crown strand, (3) 3 broken wires if the wire cross section is reduced more than 30%, (4) a safety factor of less than 4, (5) marked corrosion, or (6) dead rope (no further stretch).

(f) The minimum safety factors of a new

<i>Rope</i>	<i>Sheave and drum diameter</i>
6 x 19	37 times the diameter of the rope
8 x 19	30 times the diameter of the rope
6 x 37	30 times the diameter of the rope

2. The rope should be fastened to the load with a spelter filled socket or properly applied Crosby-type clips. Where the load is fastened with clips, a thimble shall be used.

(b) Recommended numbers of clips and spacing for various rope diameters:

<i>Rope diameter, inches</i>	<i>Number of clips</i>	<i>Space between clips, inches</i>
1	5	6
1 1/8	5	7
1 1/4	6	8

(For ropes more than 1¼ inch in diameter, the manufacturer should be consulted for proper standards to follow in fastening the rope to the load with clips. A clip-fastened rope is only 80% as strong as the same rope socketed.) After a rope has been resocketed or refastened, it should be tested with double the usual maximum load before men are transported.

(c) The rope shall be visually examined weekly by a competent person designated by management for wear, broken wires and corrosion, especially at excessive strain points—(1) near

(b) Wires and cables not incased in armor shall be supported by properly installed insulators and shall not touch combustible materials; provided, however, that this does not apply to ground wires, grounded power conductors, and trailing cables.

(c) Splices in power cables shall be made in accordance with the following:

1. Mechanically strong, with adequate electrical conductivity.
2. Effectively insulated and sealed so as to exclude moisture.
3. If the cable has metallic armor, mechanical protection and electrical conductivity equivalent to that of the original armor shall be provided.

(d) All power wires and cables shall be insulated adequately where they pass into or out of electrical compartments, where they pass through doors, and where they cross other power wires and cables.

(e) Where track is used as a power conductor:

1. Both rails of mainline track shall be welded or bonded at every joint. At least one

rail on secondary track haulage roads shall be welded or bonded at every joint, and cross bonds shall be installed at intervals of not more than 200 feet; provided, however, that rail joints in such secondary haulage roads need not be bonded where a feeder of adequate size parallels the track and is electrically connected thereto at intervals of not more than 200 feet by cross bonds.

(f) All power circuits and electrical equipment shall be de-energized before work is done on them; provided, however, that employees may, where necessary, repair energized trolley wires if they wear insulated shoes or work off an insulated platform, and wear lineman's gloves.

(g) Trolley wires and trolley feeder wires shall be kept taut and not permitted to touch any combustible material.

(h) Trolley wires shall be aligned properly and installed on insulated hangers, and they should be at least 6 inches outside the rail. Trolley wire hangers shall be so spaced that the wire may become detached from any one hanger without creating a hazardous condition.

(i) Trolley wires and trolley feeder wires shall be provided with cutout switches near the beginning of all branch lines and at reasonable intervals where needed.

dustrial Commission of Utah.

(b) Every hoist used to transport persons at a mine shall be equipped with overwind, underwind, overspeed and automatic stop controls, and with brakes capable of stopping the cage or skip when fully loaded.

(c) Electrically powered hoists used for transporting persons shall be operated from a circuit independent of other power circuits.

(d) An accurate and reliable indicator showing the position of the cage or skip shall be clearly visible to the hoistman.

(e) An audible warning device shall be installed to indicate to the hoistman when the cage or skip has reached a predetermined position approaching the collar or the bottom of the shaft.

Section 70. HOISTING ROPES, SHEAVES, FASTENINGS FOR SINGLE ROPE HOISTS

(a) Ropes used for hoisting men shall be constructed, inspected and discarded in accordance with the following principles:

1. The rope should be made of improved plow steel or better grade, and of 6 strand 19 wire or more flexible type where drum or sheave diameter warrants.

3. Every permanent ladderway longer than 30 feet and at any angle greater than 60° shall have substantial platforms at intervals of not more than 30 feet, measured vertically.

4. Where the inclination of any ladder or section of a ladder in main ladderways exceeds 70°, the sections of the ladders shall be staggered at each platform so that no section shall be directly in line with the section above or below it.

5. Ladderway openings shall not be larger than 24 inches by 24 inches.

6. Ladders shall not be so installed that they incline backward.

7. Ladders shall project at least 3 feet above platforms or landings unless handholds are provided at such places.

(c) When sinking shafts, ladderways or the equivalent shall be provided to as near the bottom as blasting will permit, and other safe means of access shall be provided from there down.

Section 69. MINE HOISTS

(a) All mine hoists installed after the effective date of these orders which are to convey men shall first be approved for that use by the In-

(j) All underground high potential transmission cables shall be:

1. ~~Installed only in regularly inspected passageways.~~

2. Covered, buried or placed so as to afford reasonable protection against damage by wrecked trips, trolley equipment, roof falls and blasts.

3. Guarded where men regularly work or pass under them unless they are 78 inches or more above the floor or rail.

4. Securely anchored, properly insulated, and guarded at ends.

5. Covered, insulated, or placed to prevent contact with trolley and other low voltage circuits.

Section 53. SUBSTATIONS—BATTERY CHARGING STATIONS—PUMP STATIONS—COMPRESSOR STATIONS

(a) All surface and underground substations, battery charging stations, pump stations and compressor stations shall be kept free of refuse and nonessential combustible material.

(b) Smoking and open lights are prohibited in battery charging stations.

(c) All housings enclosing oil switchgear shall be effectively ventilated.

(d) Reverse current protection shall be provided at storage battery charging stations to prevent the storage batteries from energizing the power circuits in the event of power failure.

Section 54. CIRCUIT BREAKERS—SWITCHES— SWITCHBOARDS

(a) Circuit breakers or fuses of the proper type and capacity shall be installed to protect electrical equipment and power circuits against excessive overload. Wire or other conducting material shall not be used as a substitute for fuses. Circuit breakers shall be maintained in good operating condition.

(b) Operating controls, such as switches, starters and switch buttons, shall be so installed that they are readily accessible and can be operated without danger of contact with moving or live parts. On stationary equipment, provision shall be made for locking starting equipment in the "off" position to prevent accidental application of power.

(c) Disconnecting switches shall be installed in all main power circuits within 500 feet of the place where circuits enter a mine.

conspicuously at all points of intersection with other passageways to indicate manways and designated escapeways.

(d) When mining by means of stopes and raises and the vertical elevation exceeds 100 feet, additional outlets should be provided when practical at least every 100 feet.

Section 68. LADDERS—LADDERWAYS—PLAT- FORMS—SINKING LADDERS

(a) In addition to any mechanical means of entrance or exit, mines shall be provided with at least one outlet through which men can walk or climb from any workings to the surface. Stopes, raises, inclines and shafts exceeding 60° pitch shall be equipped with ladders and platforms.

(b) Except where swinging or extension ladders are used for shaft sinking, ladders and ladderways shall be constructed as follows:

1. The distance between rungs of a ladder shall not exceed 14 inches and shall be spaced uniformly. Ladders shall not be less than 12 inches wide.

2. The rungs of a ladder shall not be less than 3 inches from walls or projections.

lations shall be kept free from combustible material for a distance of at least 100 feet in all directions.

(c) After the effective date of these orders, all structures other than hoisting headframes and the hatch or door necessary for closing shafts or other mine openings, shall be of reasonably fireproof construction. Provided, however, that a housing of fireproof material may be erected over a shaft, tunnel or other mine opening to protect workmen.

Section 67. MINE OPENINGS—ESCAPEWAYS— STOPE CONNECTIONS

(a) Where practical, every mine operator shall provide at least two distinct and available means of access to the surface. Under conditions where it is impractical to have two outlets, operations may be permitted with only one outlet under such conditions as the Industrial Commission may prescribe.

(b) Where communicating outlets have been established between mines under separate management for use as escapeways, neither operator shall close an outlet without first notifying the other operator.

(c) Up-to-date direction signs shall be posted

(d) Dry wooden platforms, insulating mats, or other electrically nonconductive material shall be placed at each switchboard, power control switch and fixed machine where shock hazards exist.

(e) Resistors or rheostats shall be installed so as not to create a fire hazard, and shall be guarded adequately against personal contact.

(f) When not needed, underground power circuits shall be de-energized on idle days and shifts.

(g) Electrical parts, such as switches, circuit breakers, rheostats, relays and fuses, shall be mounted on nonconductive, incombustible bases.

(h) Switchboards shall be located a safe distance from passageways or lanes of travel. Only authorized persons shall have access to the back side of switchboards.

(i) Both sides of switchboards shall be well lighted.

(j) Combustible material shall not be stored in rooms housing switchboards.

(k) "DANGER" signs shall be posted conspicuously at all high potential switchboard installations.

Section 55. GROUNDING

(a) All metallic sheaths, armors and conduits enclosing power conductors shall be electrically continuous throughout and grounded effectively.

(b) Metallic frames, casings and other enclosures of electrical equipment that can become "alive" through failure of insulation or by contact with energized parts shall be grounded effectively, or equivalent protection shall be provided.

Section 56. SAFETY LOCKOUT AND TAGGING

Where there is danger of machinery being started, or electrical circuits being energized while repairs or maintenance work is being done, the control switch shall be locked open and the workman in charge shall keep the key until the job is completed. If locks cannot be applied, tags made of nonconducting material and plainly lettered — "MEN WORKING — DO NOT CLOSE THIS SWITCH" — shall be used, or other approved lockout procedures shall be put into effect.

Section 57. TELEPHONE LINES—SIGNAL WIRES

(a) All telephone wires shall be shielded from stray currents and shall be provided with ap-

ing members of the underground supervisory staff who are familiar with the mine workings, shall be trained in the use and care of each apparatus. The original course of training shall be at least equivalent to that required by the U. S. Bureau of Mines for a Mine Rescue Certificate. Additional training shall be given at least once every 6 months, which shall consist of at least 1 hour in assembling and disassembling the apparatus, and at least 1½ hours actually wearing it in smoke or other irrespirable atmosphere.

(d) Persons who have not received the required training shall not wear the apparatus under any circumstances.

(e) It is recommended that mines join in the establishment and maintenance of strategically located rescue stations equipped with U. S. Bureau of Mines approved 2-hour type breathing apparatus.

Section 66. SURFACE FIRE PROTECTION

(a) All structures erected on the surface within 100 feet of any mine opening shall be of reasonably fireproof construction, and no flammable storage bin shall be erected within 200 feet of any mine opening.

(b) The area surrounding main fan instal-

fire prevention, fire control and rescue work. The members of the organization shall be instructed in their duties, and fire drills shall be held regularly.

(b) A plan of action, such as the "U. S. Bureau of Mines Surface Organization and Procedure for Metal Mine Fires", shall be posted on the mine bulletin board.

Section 65. RESCUE APPARATUS—TRAINING REQUIRED—CENTRAL STATION

(a) All mines in the State of Utah which employ more than 100 men per shift underground, and all others which may be required by the Industrial Commission, shall have at least 5 sets of U. S. Bureau of Mines approved breathing apparatus and an oxygen pump for recharging the cylinders.

(b) Extra regenerator charges, oxygen sufficient to furnish at least a 10-hour supply for each apparatus, and sufficient spare parts to maintain the apparatus and oxygen pump in good condition, shall be kept available at all times. The apparatus shall be tested once every month and a record of the condition of each set shall be posted near the apparatus.

(c) Two or more physically fit men, includ-

proved type telephone protectors at each connection to a telephone set.

(b) Lightning arrestors shall be provided for each circuit entering a building.

(c) Bare signal wires that are readily accessible to personal contact shall not carry more than 24 volts.

Section 58. SURFACE AND UNDERGROUND ILLUMINATION

(a) Lighting shall be provided at all shaft stations, permanent hoists, pump and other major installations during the hours men are on shift.

(b) Electric light wires shall be supported by suitable insulators, or installed in conduit, and not permitted to touch combustible material.

(c) Electric lights shall be installed so they cannot come in contact with combustible materials.

(d) Only weatherproof lamp sockets having no exposed metal parts shall be used for unenclosed applications.

Section 59. CONDITIONS NOT COVERED HEREIN

In the absence of specific rules or regulations,

the current editions of the National Electrical Safety Code or the American Standard Association Inc. publication entitled "Safety Rules for Installing and Using Electrical Equipment in and about Metal and Nonmetallic Mines" shall be used as a guide.

UNDERGROUND MINING

Section 60. LIMITATIONS ON UNDERGROUND EMPLOYMENT

No person under 18 years of age shall be employed or permitted to work in an underground mine. The supervisor in charge shall be responsible for positively determining that youthful applicants are at least 18 years of age before hiring them for underground work.

Section 61. SOLITARY EMPLOYMENT

No person shall be employed underground at such a distance from other employees that his cries, in case of need, cannot be heard, unless he is in communication with another employee at least once every hour. The supervisor shall make, or designate someone to make, such communication.

Section 62. CHECKING SYSTEM

Each mine shall have a check-in and check-out system that will provide at the surface an accurate record of every person in the mine.

Section 63. CHANGE ROOMS

(a) The operator of every underground mine wherein 10 or more men are employed shall provide, within a reasonable distance of the mine portal, an adequately lighted and heated change room, with facilities for washing and bathing. At least one showerhead shall be provided for every 10 men regularly employed per shift. Where less than 10 men are employed and no suitable water is available on the property for bathing purposes, showers are not required, but washing facilities shall be provided.

(b) Change rooms, bathing and toilet facilities shall be maintained in a clean and sanitary condition. Means for the prevention of foot infections shall be provided.

Section 64. ORGANIZATION FOR FIGHTING FIRES AT UNDERGROUND MINES

(a) At each underground mine employing 25 or more men there shall be an organization for